

REMARKS

Claims 1-33, 66-76, 117-172 are pending and remain in the application. Claims 17, 27, 33, 66-76, and 117-156 have been allowed. Claims 1-16, 18-26, 28-32, 157-159, 161, 162, 164, 165, 167, and 168 stand rejected. Claims 160, 163, 166, 169, and 172 are objected to. Applicants respectfully traverse the rejections for the reasons expressed herein below.

Claim Rejections under 35 U.S.C. §103

Claims 1-16, 18-26, 28-32, 157-159, 161, 162, 164, 165, 167, and 168 stand rejected under 35 U.S.C. §103(a) as being obvious over JP 60-21559 ("JP '559") in view of U.S. Patent No. 5,240,772 to Henning ("the '772 patent"). The Examiner draws the Applicants' attention to specific areas of JP '559 and the '772 patent that, together, are said to render obvious the present invention as recited in the claims. Applicants respectfully traverse this rejection and request reconsideration of claims 1-16, 18-26, 28-32, 157-159, 161, 162, 164, 165, 167, and 168.

Claims 1-16, 18-26, 28-32, 157-159, 161, 162, 164, 165, 167, and 168 recite a fiber reinforcement material, a reinforcement for cementitious material, or a reinforced cementitious material comprising a plurality of polyolefinic strands of monofilaments of about 350 to about 6000 denier per filament, twisted to form a fiber bundle. Claims 1, 18, 28, and the claims that depend therefrom, recite that the degree of twist is greater than about 0.9 turns/inch (about 0.36 turns/cm). Claims 161, 164, 167, and the claims

that depend therefrom, recite that the monofilaments are configured into a fiber bundle in the absence of a wetting agent.

As noted by the Examiner, JP '559 discloses fibers for reinforcing cement wherein the fibers form yarns with a size of 200 – 5000 denier. As set forth in JP '559 at page 2, first paragraph under Section 2 entitled "Patent Claims," and at page 8, first paragraph, the invention set forth in JP '559 "is characterized by consisting of synthetic fibers with a fineness of 0.5 – 25 denier." At page 6, first and second full paragraph, JP '559 distinguishes what are characterized as poor performing "thick" fibers of the prior art (e.g. 100 – 1000 denier) from the "fine" fibers of JP '559 that have a size of 0.5 - 25 denier. At page 9, lines 6-12, JP '559 teaches that the use of thin fibers of between 0.5 and 25 denier provides high strength and Young's modulus, and places specific emphasis on the criticality of the monofilament size range contemplated in JP '559, stating:

When the monofilaments have a fineness of 0.5 denier or lower, the manufacturing process will become complicated and the cost will be high. *On the other hand, however, when the monofilaments have a fineness of 25 denier or higher, the reinforcing effect of the fibers will be insufficient. In addition, the contacting area between the fibers will be too low, and the bundling will become difficult.*

Emphasis added.

It is respectfully submitted that JP '559 teaches away from the fiber thickness recited in the present claims, and, therefore, cannot be combined with the '772 patent to render obvious the present claims. As set forth above, JP '559 clearly teaches against the use of "thick" (e.g. "100 – 1000 denier") fibers as a reinforcement for cement, stating at page 6, lines 6-7 that "it was impossible to achieve a high level of strength and

Young's modulus by using such thick fibers," (*emphasis added*), and, instead, teaches the use of "fine" fibers having a denier of 0.5 – 25 denier.

Accordingly, one of skill in the art reading JP '559 would be motivated to use only thin monofilament fibers of no more than 25 denier as a cement reinforcement material, and would be lead away from employing fibers having a thickness within the claimed range (350 to 6000 denier). This is so because JP '559 teaches that fibers of a thickness in the present claimed range are "poor performing" fibers for cement reinforcement which render the clearly stated objectives in JP '559 of high strength and Young's modulus "impossible."

The '772 patent teaches a monofilament of oriented thermoplastic polymer having a specific width-to-thickness and modification ratios, a denier of greater than 1000, a tenacity of greater than about 7.5 g/d, and a modulus greater than about 45 g/d.

It is submitted that the teachings of the '772 patent, specifically the use monofilaments of greater than 1000 denier, cannot be combined with the teachings of JP '559 to render obvious the present claims. Otherwise, a clearly stated objective of JP '559 of obtaining high strength and Young's modulus would not be achieved. The present claims recite a monofilament fiber having a thickness of about 350 to about 6000 denier. Although the '772 patent teaches the use of monofilaments within this claimed range, monofilaments of this thickness clearly would not be employed by JP '559, and any modification of JP '559 to employ monofilaments within the claimed range would destroy the intended function of the reinforcement material of JP '559.

Accordingly, it is respectfully submitted that the PTO has failed to establish *prima facie* obviousness, and that JP '559 in view of the '772 patent cannot be said to render obvious present claims 1-16, 18-26, 28-32, 157-159, 161, 162, 164, 165, 167, and 168.

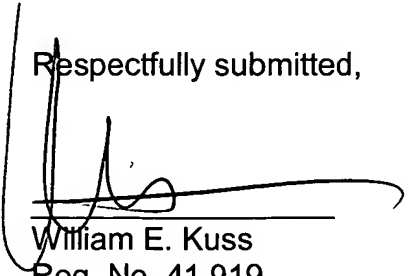
CONCLUSION

Applicants submit that claims 1-33, 66-76, and 117-172 of the present invention recite a novel and non-obvious fiber reinforcement material and cementitious materials employing the same. The cited references do not teach or suggest the claimed invention. In view of the foregoing, Applicants respectfully submit that the subject application is in condition for allowance. Accordingly, reconsideration of the rejections and allowance of all claims at an early date are earnestly solicited.

If the undersigned can be of assistance to the Examiner in addressing issues to advance the application to allowance, the Examiner is invited to contact the undersigned at the number set forth below.

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Date

Respectfully submitted,



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